

Great Problem of Saving Smoke-Blighted Farms

WET weather and smelter smoke are doing a work of devastation for Salt Lake county this week and last week which promises to run the total damage for 1905 to a point far in excess of all the previous summer weeks added together.

Ordinarily farmers are supposed to dance for glee when the rain comes, and welcome the fall of water on maturing crops, but in this valley the autumn showers bring sorrow in their trail and cause the farmer whose capital is his land and his muscle, and whose winter food is his expected harvest, to mutter against his fate when

completely settled the question to the loss of the farmers.

A year ago the Deseret News sent representatives over the entire infected area for the purpose of ascertaining the exact condition from an unprejudiced point of view.

LOSS LESS THIS YEAR.

Another inspection of the valley made this week by the same representatives convinces them that the situation has many new elements in it and that generally speaking the financial loss to the farmers will total far less this year than last. This is accounted for by the fact that the damage started later this year, and went south of the smelters rather than in its old path along the Jordan. In some fields

where over 50 horses died last year, the damage was not so great this year, because the 600 acres comprising the farm had been abandoned as a pasture, and no valuable stock was risked upon it. Mr. Rees, however, declares that a few milk cows which had been turned in this year had sickened as in previous seasons, and gave it as his belief that it was not the sulphur gas but the metal dust which poisoned them.

NEW BLIGHT SECTION.

South winds have been rare this season, and the rain has come principally with winds from the north. This has caused a new area of heaviest blight, lying to the southeast of Murray, especially in the line of the American smelter stack.

brown volume of smoke from the high chimneys begins to dip lower, the blighting will be noticed, first in the tops of the trees, and finally the weeds along the ditch banks and the lucern crops in the fields.

But new elements are entering into this great economic problem, and these are found at the smelters themselves, as well as in the courts where the damage of farmers has been for a year or more closing the plants.

A year ago there was nothing at the smelters to indicate that they had a thought in the world beyond the smelting of ores. Now there is much to tell of their work on saving the loss through the smoke stacks. At one a visitor may see a man at work with an ore pan making a pile of fine dust, at another a flatcar loaded with pipes, which he is informed are to be used to close the plant.

FORCED BY AGITATION.

This new construction work has been forced by the smelter agitation. What its results will be the farmers will understand to the point of conviction, only when they harvest the crop in the autumn when they see in the spring, if they do that next fall they will feel amply repaid for all the efforts they have been put to in bringing the smelter fight to a head, and if solving the problem the smelters have brought more money instead of less into the net gains, then the farmers are perfectly willing to let their rebellion be second to that of the smeltermen.

HISTORY OF STRUGGLE.

The history of the struggle which has now culminated in a suit to close the smelters by injunction, looked in its beginning upon this action only as a last resort. It hoped to obtain relief by partition to the smeltermen themselves. However at a meeting in the office of the American Smelting and Refining company, the attitude of the smeltermen, Charles Whitney, antagonized the farmers' committee, and they became convinced that the smelter at least would do only what it was forced to do. In the smelters there was a varying degree of faith, which has apparently been justified, as the American is now the only smelter which has continued an attitude of antagonism to the farmers, and which has shown no evidences of working to solve the problem. South-east of its stacks lies a path of especially heavy damage, and apparently the prevailing winds carry the smoke of no other smelter in that direction.

MEETING OF THE FARMERS.

It was on Oct. 10, 1904, that the farmers of Salt Lake Valley met at Murray, and with every man represented, voted to cease amicable attempts to secure a settlement, and to transfer the fight from the smelter operators to the Legislature and the courts. The decision came only after a long discussion, and then the men who were present signed an agreement to stand by the legal battle, and pay all expenses on a pro rata according to acreage. A first payment of 10 cents per acre was collected on the spot.

Prior to this meeting a series of meetings had been held through the summer, in which an organization was gradually perfected. It appeared that the discussions that while before this year farms close in had suffered, the

building of new roasting ovens, and the raising of the smoke stack at the Highland Boy had increased the area of damage to its present proportions, and had given a new cause for complaint to the 500 farmers who joined in the movement.

The central committee which was selected at an early meeting, consisted of O. P. Miller, John C. Mackey, W. D. Peak, Joseph R. Carls, Henry Burton, L. E. Lee, and James Godfrey.

This committee, while negotiations were still pending with the smelters, organized subcommittees to carry the matter into the Legislature, necessary into the courts if necessary, and to finance any movement that was deemed advisable.

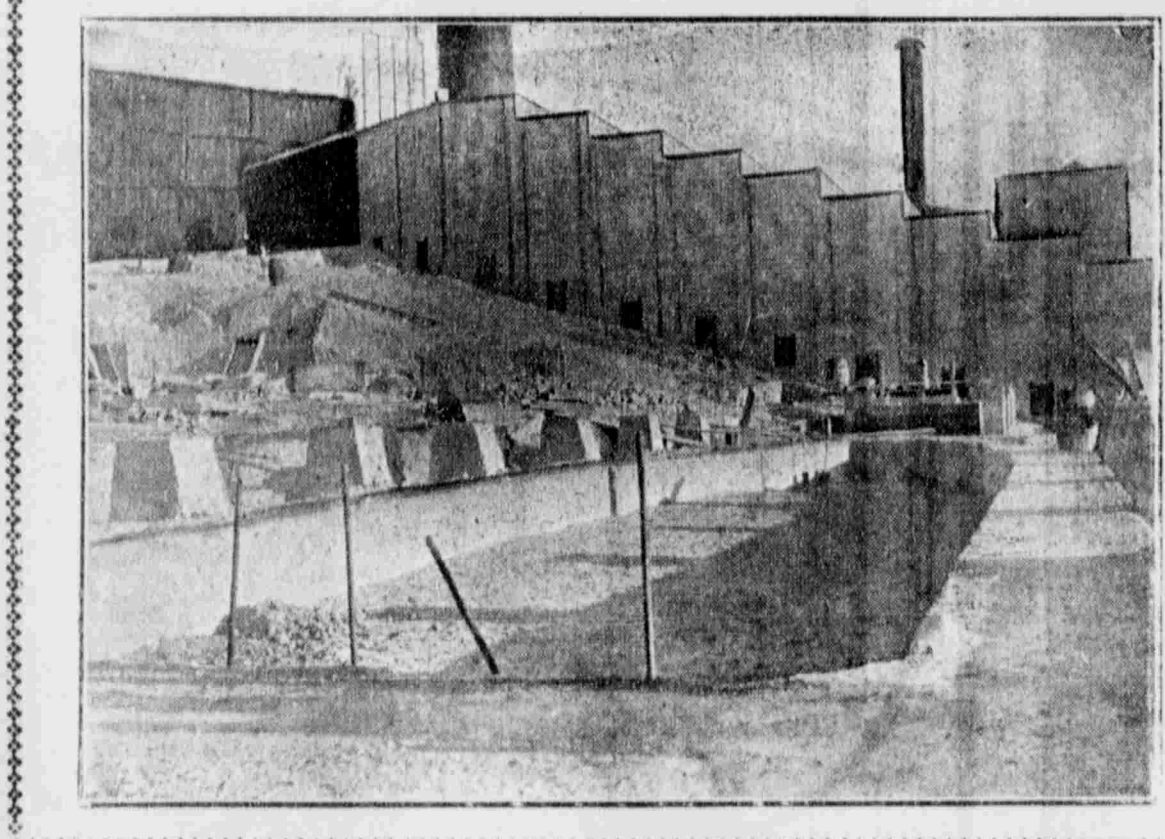
duction of ores; so that any scheme that might be recommended as feasible for adoption at one of the plants might not be at all feasible for adoption at another plant; and again, it is possible that some one plan can be devised to handle the fumes from all the plants.

We propose that a body of experts shall be appointed for the purpose of examining into conditions at the various smelting plants, and into the known and proposed methods for controlling fumes, for the purpose of recommending to the smelters, either collectively or severally some feasible plan to be adopted by the smelters jointly or severally, for the control of such fumes, and if any plan recommended by the body of experts be com-

UNITED STATES SMELTING CO.—By C. E. Allen.
BINGHAM COPPER & GOLD MINING CO.—By Duncan McVie.
AMERICAN SMELTING & REFINING CO.—By C. W. Whitney.

NEGOTIATIONS BROKEN OFF.

The proposition was rejected at the Murray mass meeting, and the general committee and sub-committees, with plans already worked up, decided to abandon any effort to secure state legislation in their behalf. The preparation of the papers consumed the present winter, and the suit was filed early in the present summer. The answers of the smeltermen to it were made only a few weeks ago, and are still well re-



THE BINGHAM CONSOLIDATED'S NEW SMOKE SOLVER.

Showing Fume Collector in Background and Reverberatory Foundation in Foreground Being Built at a Cost of \$20,000.

he awakens on a rainy morning to find an expanse of white blight where his lucern was heading into cutting form, and a row of dead and blistered trees where his orchard fruit was almost ripe.

BLIGHT BY RECENT STORMS.

The situation a year ago in the valley was serious. This year it has been much less so, up to the past few weeks. The long, dry summer that caused a water famine all around brought hope to the farmers that they could mature the first crop of three seasons, and in some cases, of four. The rains of two weeks ago started the first doubts that this would be so, and the past week of storms has com-

where farmers were burning their first and second crops of lucern last year, big stacks are standing this year, showing that it has been harvested, and only the third crop is being destroyed by the blight.

GREENER VEGETATION.

The vegetation is perceptibly greener in the river district, and on poplar trees where the upper branches had been killed last year, a new growth has come out near the bottom of the trunk making a bush like effect with dead limbs projecting above. The early crops were mostly successful this year, too, while last year southern winds with rains early in August destroyed them.

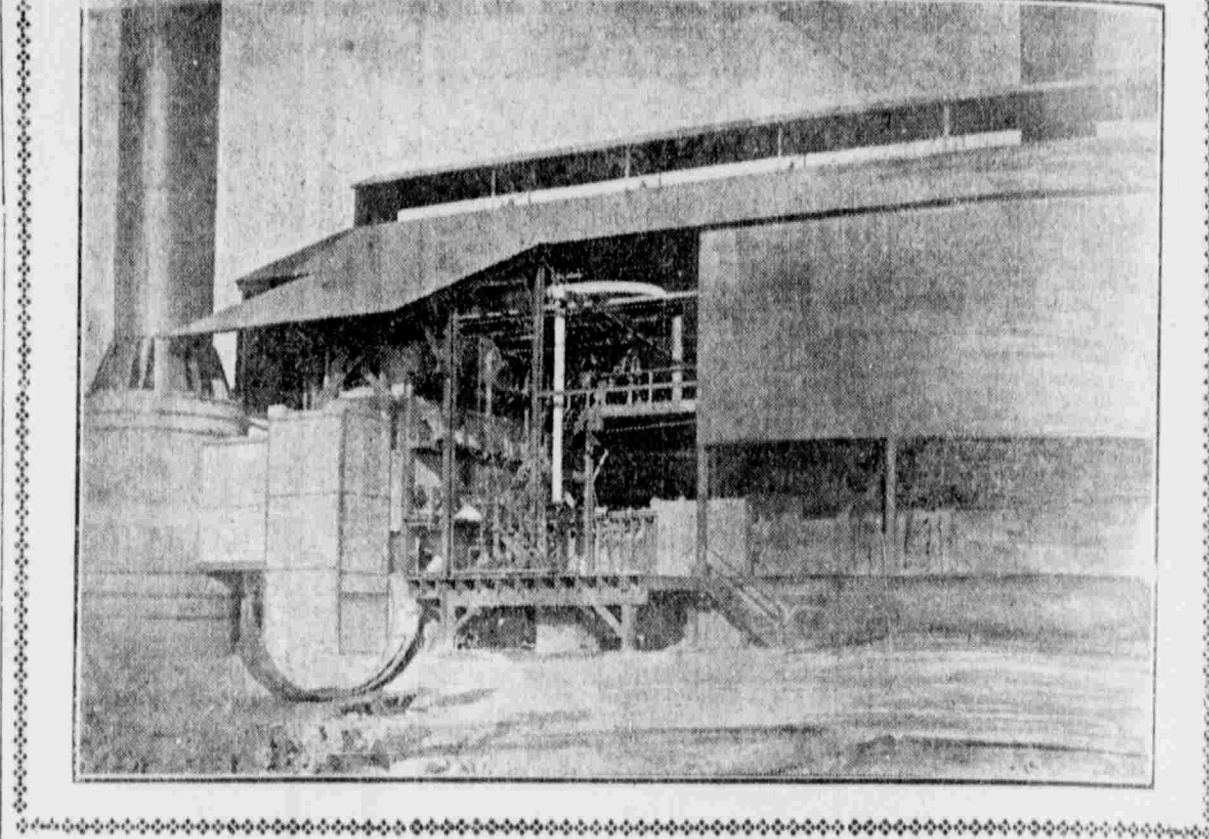
FEWER ANIMALS KILLED.

At the Rees Brothers stock farm,

FEELING IS STRONG.

While the people north of the smelters are not so active in their hostility as they were when life was most burdensome to them, it is not so towards the Cottonwoods. Here where the blight centers, the wrath of the inhabitants is consequently stirred to its highest pitch. To gain a good fair idea of how extensive is the damage one should ride south from Murray on State street to near Sandy, and then turn east to the foot-hills, circling back towards Murray in the upper district. The vegetation will be found to be comparatively good right at the smelters, and at some of them employees have vines and rose gardens about their houses.

But further out as the black and



UNITED STATES POISONOUS DUST TREATER.

Built This Year at a Cost of Thirty Thousand Dollars, and Said to Be Wonderfully Successful in Solving Smoke Evil.

STATEMENT OF GRIEVANCE.

They first submitted a statement of their grievances to the managers, and after long delays, the smeltermen submitted a joint answer in writing. It was as follows:

Conforming with the request of your committee expressed this morning to put in writing our proposition for the control of the fumes issuing from the smelters, we have the honor to acknowledge the undersigned, the undersigned, to amicably adjust, so far as possible, the differences between the parties interested, and to submit the following:

You will understand that the various smelting plants of the undersigned are working on different classes of ore; that each is arranged differently for the working of ores; that in each different processes are used for the re-

mercially feasible, then we will respectively adopt the same. Your committee shall have the right to name one of the number composing the body of experts, if your committee voted as above. We would expect the body of experts named to make the most thorough investigation possible, and would expect them to make a report as soon as they could.

Please indicate your acceptance by your committee of this proposition, and designate the person, if you decide to name one, who is to represent you as expert, as soon as possible. The undersigned will, if you desire it, pay the entire expense of the investigation. Very respectfully,
UTAH CONSOLIDATED MINING CO.
—By R. H. Channing, Jr.

membered. Julia Marshall now has the case in hand under advisement, and the taking of testimony is expected to begin in the near future.

Following the breaking off of negotiations, the smeltermen went ahead with their plans.

Experts were secured and their reports were furnished, after which the smelter went ahead on its own initiative. While their results are promising to the public in general, still the farmers declare it is their intention not to abate their vigilance in the slightest and to crowd their legal fight, until actual relief is visible in their fields. Members of their committee express themselves now as fearing that if they stop their pressure, the experiments will cease, and the much sought relief will stop before its benefits reach their side of the trouble.

EXPERTS DECLARE THAT SCIENCE IS GOING TO SOLVE THE POISONOUS FUME SCOURGE.

IT IS the firm opinion of well known smelting men that science is going to solve the smelter smoke problem in the Salt Lake valley. If the smelting companies operating in this state meet with the same degree of success that the owners of the Washoe plant at Anaconda, Mont., have, it will not be very long until the troubles which have sprung up between the farmers and other citizens of the valley and the smelting companies will have come to an end and peace will reign between them again.

There is no denying the fact that the farmers of the valley have had good reason to complain; that they have had just cause to take remedial steps against the smelting companies in the courts, and otherwise. The managers of the smelters have recognized this and where the courts have not been left to decide the amount of damage done, in many instances, the latter have treated directly with the farmers to arrive at a settlement of their claims.

But after all, the smelting companies, which have millions of dollars invested here, have reason to feel thankful for this agitation of the smoke question. It has given an opportunity for such scientific investigation that otherwise would probably have been delayed for a good many years to come. It has cost them many thousands of dollars, to be sure, in the employment of expert talent to conduct the experiments carried on within the past year, but the progress has been made in the way of the discovery of new methods for the handling of the fumes and in the saving of the metallic substances contained therein, the elimination of which removes the most vital causes which lead to the destruction of growing vegetation and danger to animal life, that the investment will prove to be profitable.

The statement has been made that the local smelters have lost in the smoke sent out of their stacks enough values to pay the cost of their operation. The writer does not pretend to say if this is the truth or not; yet it is an admitted fact that what is now being saved in the shape of fine dust, as a result of the late investigations, has been the means of increasing the earnings of at least some of the plants operating within the confines of the Salt Lake valley.

Investigation has revealed that in almost every instance the most serious consequences to vegetation have occurred through the medium of the volatile or metal fumes, which, on being cooled through coming into contact with the sides of the stack or the air on passing from it, form in fine particles in the shape of dust, and pass off into the atmosphere, finally becoming deposited broadcast over the country. To one not a chemist, it would seem that the mere deposition of this dust would be a harmless affair. So it is according to what the chemists have to say, until moisture is brought in contact with it. Then something happens. A sulphurous acid forms and withers the leaves of trees and plants as if they had been frost bitten. Evidence of this can be seen now in the vicinity of Murray, while at Bingham Junction the effect is slightly visible.

WHAT THE BINGHAM IS DOING.

Among the first of the smelter managers to realize that if some means were devised to save the fine dust, the danger to vegetation could at least be minimized, if not entirely overcome, was Captain Duncan McVie of the Bingham Consolidated. According-

ly, the experts employed by his company set out to accomplish results along that line. It had been suggested that one sure way to overcome the trouble was to apply the water spray, but the plant was not deemed feasible, for the reason that Manager McVie and his advisors decided it would be a difficult matter to secure a supply commensurate with the needs.

After a series of experiments, it was concluded to enlarge the old system by the installation of expansion chambers for the cooling of the gases and collection of dust.

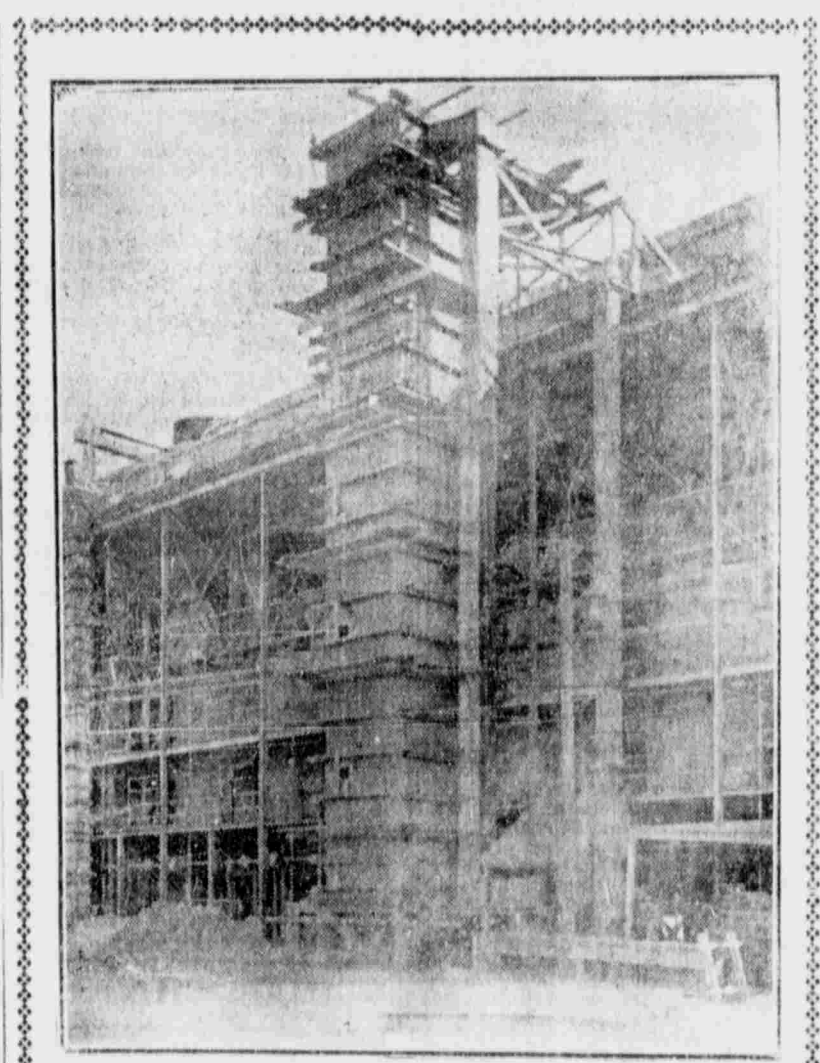
The first unit consisted of a large chamber 75 feet in length, 24 feet high and 30 feet wide, the frame was constructed of steel and covered by sheet metal. At the top of this chamber were six nozzles, to which baffles are suspended, the same being constructed partly of expanded metal lath and rods set close together.

The function of the baffles, as the company's mechanical engineer explains it, is to divide the stream of gases into small portions. The cooling effects of the baffles and chamber tends to deposit the fine dust, or metallic fumes, on these rods and baffles as well as on the sides of the chamber, which are cleaned out from time to time.

The chamber is of large size in comparison to the main flues; the velocity of the gases is checked on entering by the expansion of area. This also tends to cool the gases and the contact with the sides of the metal chamber has the same effect. It has been practically all collected. But to still add to the efficiency, it is the intention to equip this chamber also with baffles on the order of those installed in the steel chamber. In order that either of the chambers may be cleaned, dampers have been put in and so arranged that the course of the fumes may be changed or shut out of the chambers entirely.

What will be an important feature of the Bingham Consolidated's equipment designed to remove the dangers to vegetation is the reverberatory plant, now in course of construction, which will be of large proportions, having a hearth 19x55 feet, while the outside dimensions will be 25x125 feet. In this plant will be treated all the dust from the flues, possibly doing away with the necessity of briquetting the dust going direct from the chambers to the reverberatory. The fine ores from the smelters, as well as concentrate from the mill, will also be treated in this plant, the same going first to the roasters, thence to the flues of this reverberatory are to be placed two Sterling boilers, of the capacity of 50 horse power; they are to be set in tandem and arranged with bypass flues and dampers, so that they can be cut out at any time. The whole installation will be enclosed in steel buildings of latest design, and everything will be arranged for the most convenient handling of material, also for the conservation of the heat in the calcines, which means a saving of fuel in the reverberatory.

From the reverberatory, the slag is to



COKE TOWER FUME ABSORBER.

Temporary Experiment Plant Which the Utah-Consolidated Says Will Overcome All Trouble.

be taken in large slag pots to the slag dump and one matter taken in large ladles and carried on specially designed trucks to the converter building, where the ladles will be lifted from the trucks by electric cranes, of which the Bingham company has two, and poured directly into the converters, where it is blown up to blister copper.

With the reverberatory taking care of all the fine dust, flues in ore and concentrates, the burden is relieved from the furnaces, enabling them to maintain a greater output and to cut down the production of fine dust. The plant is to be arranged so that its capacity may be doubled without serious delay. It will be ready for commission about Nov. 1. By the time the plant goes into service the Bingham company will have expended \$20,000 in the construction of an extensive fume system, in many respects.

AT UNITED STATES PLANT.

One only needs to visit the great plant of the United States Smelting company at Bingham Junction to fully realize or appreciate what has been done and is now being done there to find a way to control the smelter gases,

That Manager Walter Fitch, and those associated with him have been faithful and diligent in their efforts to arrive at a solution of the problem, which would bring relief to the farmers who have suffered and will continue to suffer from the existence of the smelters within their midst, there is no slight doubt. There is ample evidence of this. For the United States Smelting company has expended during the year at least \$20,000 in the construction of an extensive fume system, in many respects.

That of the Bingham Consolidated company, the same theory as to the collection of the fine dust prevailing. The company has also built and now has in operation a reverberatory plant which has cost no less than \$20,000 for the treatment of the fine dusts and the ore fines, reducing the same to a matte. Preceding this installation, like some of its neighbors, the company expended a great deal of money in the conduct of experiments and the employment of expensive talent to supervise them.

It need only be said of the United States smelter that more values were lost in the fine dust passing off into space than would be required in the cost of operation, and that one who has been dared to look up under the smoke line without taking a chance on

getting his eyes filled with the dust precipitating from the stream of smoke issuing from the stack. But it is not so and, Supt. Hazelton informed a representative of the "News," who visited the plant recently, that while the system of collecting the dust is not entirely perfect, yet with the appliances that have been installed the retention of dust within the flues is so perfect that little escapes, and what does, in his opinion, will do no harm to vegetation.

Mr. Hazelton is not so sanguine that the sulphur fumes can be entirely eliminated, yet through the adoption of certain changes in charging by the use of more oxide iron ore and less iron sulphide, the percentage of S-O₂ in the smoke has been reduced to about one-third former normal conditions. The ores treated at the United States plant do not contain as much sulphur, arsenic and antimony as those handled by some other smelters, a condition decidedly favorable.

AT UTAH CONSOLIDATED.

It was in December last that Manager R. H. Channing of the Utah Consolidated Mining company inaugurated experiments at the smelter of that corporation, located not a great way from Murray. Up to this time this company had figured probably more conspicuously than any of the other plants in

damage suits filed in the courts. Here, as elsewhere, the experiments have been conducted with such results that the management is confident that as soon as the permanent plant is constructed—which is to go up at a cost, it is said, of more than \$100,000—the situation will be fully under control.

In the suppression of the fumes at the Utah Consolidated plant, unlike the plan settled upon by other valley plants, water is to perform an important function. After a long series of tests it has been concluded that the system to prevail is that of the installation of scrubbing towers into which is introduced the smoke and fumes from the furnaces. These towers are built of wood, filled with shavings at intervals, the intermediary space being filled with coke. The gases are drawn up by a fan, while the water set in at the top, is allowed to pass down.

The experiments proved that in this plan it was difficult to get a proper absorption of the gases, without the use of about 10,000 gallons of water per minute to purify the smoke. The company then applied for water rights in the Jordan river for this water and started the construction of an additional boiler house equipped to pump the water to the point where it is to be used at the smelter. With this much

completed, the question of disposition of the acid water arose for consideration and two solutions of this problem were proposed. One of them was to force the poisonous fluid in enclosed pipes out onto the alkali flats and there deposited; the other proposition was to convey it in pipes further on out to be emptied into the Great Salt Lake.

After progressing this far a simpler solution for the disposition of the acid water was suggested and experiments are now being carried on to cut down the water requirement. A plan has been devised for the neutralization of the acid water, which, when released, will pass out with the poisons eliminated.

A force, consisting of a chief engineer, three chemists, with the requisite mechanical help of about 12 men additional, has been engaged in the experiments all the past summer. It is said at the present stage of the experiments 92 per cent absorption of the smoke is possible.

The plans for the proposed permanent plant have been drawn and it is expected that its construction will commence within the next two months. It will be built with 20 times the capacity of the larger tower but for experimental purposes and will take care of all the smoke and fumes arising from the McDougall roasters.

REBUKING A MISER.

Charles M. Schwab, in the cool of the evening, was pacing Atlantic City's broad and gay board walk. Every little while a chairman, pasting, would give the misanthropic salute as an emperor might have envied.

"Why," said someone, "do these chair pushers greet Mr. Schwab so impressively?"

"It is because he tips them with such generosity," another replied.

But Mr. Schwab deprecated that statement. Then, laughing, he said: "No, I am not extravagant in my tips. At the same time I try to avoid the example that old Thomas McWade set in Loretto in my boyhood."

"Thomas was a mean man, a very mean man. One day he pulled up his legs before the general store."

"Herc, Herc, hold my horse," he said, getting down.

"So Herc, a one-armed man, held the horse ten minutes. Then Thomas responded."

"Thank you, Herc," was all he said, and he got in and drove off. And Herc, who had expected at least a nickel, was too profoundly excited over the old man's meanness to say a word."

"But a few weeks later Thomas got down from his team at the same place, and asked the one-armed man to hold it for him again."

"Herc, primed now, shook his head. 'No, Thomas,' he said, 'I've given

that up. I don't need to hold horses no more.'"

"How's that?" asked Thomas.

"Why?" Herc answered, "what you gave me last time has made me independent."

TO DETECT CHALK IN MILK.

Dilute the milk in water; the chalk will be heavier than the milk and will settle in an hour or two. Put to the sediment an acid, vinegar for instance, and if effervescence takes place, chalk is present in the milk. I have tried this a number of times, and have been able to bring the guilty parties to justice.

—National Magazine.

HOFFMAN'S HAIR TONIC

Grows hair—makes weak thin hair strong and vigorous. Keeps the hair free from dandruff, and is only

\$1.00 A BOTTLE—Money Back If It Fails.

\$100 REWARD for any case of dandruff or falling hair that it fails to cure effectively and permanently.

Hoffman Remedy Co. 787 So. 11th St., Denver, Colo.

Dear Sir: Having recovered from erysipelas, I found that my hair was falling out very fast. One bottle of Hoffman's Hair Tonic not only stopped my hair from falling, but started a new growth of hair. Thanks to your remedy. Very truly yours, J. M. QUIRK.

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GODFREY-PITTS DRUG CO., 161 Main St.	F. C. SCHRAMM, 1st So. and Main, "Where the cars stop."
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